

REMARKS

In the final Office Action, the Examiner rejected claims 1-57 under 35 U.S.C. § 102(e) as anticipated by Kovacevic et al. (U.S. Patent No. 6,674,805).

By this Amendment, Applicants propose amending claims 1, 21, 56, and 57 to improve form. Applicants respectfully traverse the Examiner's rejection under 35 U.S.C. § 102. Claims 1-57 remain pending.

In paragraphs 2-23 of the Office Action, the Examiner rejected claims 1-57 under 35 U.S.C. § 102(e) as allegedly anticipated by Kovacevic et al. Applicants respectfully traverse the rejection.

A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either expressly or impliedly. Any feature not directly taught must be inherently present. In other words, the identical invention must be shown in as complete detail as contained in the claim. See M.P.E.P. § 2131. Kovacevic et al. does not disclose or suggest the combination of features recited in claims 1-57.

Amended independent claim 1, for example, is directed to a system for processing data received in a plurality of incoming streams of variable speeds. The system comprises a memory configured to store data associated with a plurality of incoming streams of variable speeds, an interface controller comprising a first arbitration element to arbitrate among the streams of variable speeds to store the data in the memory, and a dispatch unit comprising a second arbitration element to arbitrate among the streams of variable speeds to read the data from the memory.

Kovacevic et al. does not disclose or suggest the combination of features recited in amended claim 1. For example, Kovacevic et al. does not disclose or suggest a memory configured to store data associated with a plurality of incoming streams of variable speeds. In fact, Kovacevic et al. is completely silent with regard to streams of variable speeds.

The Examiner alleged that Kovacevic et al. discloses a memory configured to store data associated with a plurality of incoming streams of variable speeds and cited column 25, lines 21-25, of Kovacevic et al. for support (final Office Action, paragraph 2). Applicants respectfully disagree.

At column 25, lines 21-27, Kovacevic et al. discloses:

Because the private data from be transport packet has a variable length, there is no guarantee that the private data will end on a double word boundary. If the private data does not end on a double word boundary, the partial double word portion of private data at the end will not be sent to the FIFO until additional private data from unrelated source is received.

In this section, Kovacevic et al. appears to disclose that private data from a transport packet has a variable length. Nowhere in this section, or elsewhere, does Kovacevic et al. disclose or suggest a memory configured to store data associated with a plurality of incoming streams of variable speeds, as required by claim 1. Contrary to the Examiner's allegation, variable length packet data is not equivalent to data associated with incoming streams of variable speeds.

Kovacevic et al. also does not disclose or suggest an interface controller comprising a first arbitration element to arbitrate among the streams of variable speeds to store the data in the memory, as further recited in amended claim 1. Kovacevic et al. is silent with regard to arbitration, especially arbitration among streams of variable speeds to store the associated data in a memory, as required by claim 1.

Kovacevic et al. also does not disclose or suggest a dispatch unit comprising a second arbitration element to arbitrate among the streams of variable speeds to read the data from the memory, as further recited in amended claim 1. Kovacevic et al. is silent with regard to arbitration, especially arbitration among streams of variable speeds to read the associated data from a memory, as required by claim 1.

For at least these reasons, Applicants submit that claim 1 is not anticipated by Kovacevic et al. Claims 2-20 depend from claim 1 and are, therefore, not anticipated by Kovacevic et al. for at least the reasons given with regard to claim 1. Claims 2-20 are also not anticipated by Kovacevic et al. for reasons of their own.

For example, claim 4 recites that the first arbitration element is configured to store a plurality of entries, where each of the entries includes a stream number that identifies one of the streams. Kovacevic et al. does not disclose or suggest the combination of features recited in claim 4.

The Examiner alleged that Kovacevic et al. discloses a first arbitration element that is configured to store a plurality of entries, where each of the entries includes a stream number that identifies one of the streams and cited column 16, lines 1-11, of Kovacevic et al. for support (final Office Action, paragraph 5). Applicants respectfully disagree.

At column 16, lines 1-11, Kovacevic et al. discloses;

In the implementation of FIG. 21, a storage location within the storage locations 751 is reserved for the STREAM ID header field of a transport stream packet. In the embodiment shown at FIG. 21, inputs of the storage location for STREAM ID are connected to the appropriate bits of the data bus and the counter controller 752, to receive stream ID data from the FRAMER DATA representation of the transport stream at the correct time. The counter controller 752 receives the VSTART signal indicating

the start of a new video PES and generates enable signals to capture the stream ID, and other information, from the video PES header.

In this section, Kovacevic et al. discloses that there is a storage location for storing a STREAM ID header field. Nowhere in this section, or elsewhere, does Kovacevic et al. disclose or suggest a first arbitration element that is configured to store a plurality of entries that each includes a stream number that identifies one of the streams, where the first arbitration element arbitrates among the streams of variable speeds to store the data in the memory, as required by claim 4.

In response to a similar argument by Applicants, the Examiner alleged that Kovacevic et al. discloses the features of claim 4 at column 29, lines 59-63 (final Office Action, paragraph 26). Applicants disagree.

At column 29, lines 59-63, Kovacevic et al. discloses:

Referring to FIG. 16, the VIDEO PID storage location 424 provides the PID value which identifies the current video stream, while the shadow register associated with location 424 (not illustrated) stores the PID value of the next video stream to be accessed at the splice point.

In this section, Kovacevic et al. discloses that a PID value identifies a current video stream. Nowhere in this section, or elsewhere, however, does Kovacevic et al. disclose or suggest a first arbitration element that is configured to store a plurality of entries that each includes a stream number that identifies one of the streams, where the first arbitration element arbitrates among the streams of variable speeds to store data in the memory, as required by claim 4.

For at least these additional reasons, Applicants submit that claim 4 is not anticipated by Kovacevic et al. Claims 5-8 depend from claim 4 and are, therefore, also not anticipated by Kovacevic et al. for at least the reasons given with regard to claim 4.

In addition, claim 5 recites that the number of entries in the first arbitration element for a particular one of the streams is based on a speed of the stream. Kovacevic et al. does not disclose or suggest the combination of features recited in claim 5.

The Examiner alleged that Kovacevic et al. discloses that the number of entries in the first arbitration element for a particular one of the streams is based on a speed of the stream and cited column 31, lines 10-21, of Kovacevic et al. for support (final Office Action, paragraph 6).

Applicants respectfully disagree.

At column 31, lines 10-21, Kovacevic et al. discloses;

FIGS. 39-42 illustrate a specific implementation of a method for blind synchronization to a transport stream. Blind synchronization allows the framer to acquire the transport stream, i.e. lock onto the transport stream, without any prior knowledge of the transport stream characteristics.

As discussed with reference to FIGS. 8 and 9, the transport stream can include a variety of signals. At a minimum, the transport stream will include a data signal (TDATA) and a clock signal (TCLOCK). Additional signals that may exist include TSTART, TVALID, and TERROR. Based upon these signals, the transport stream has a number of characteristics, such as individual signal polarities, and data ordering.

Contrary to the Examiner's allegation, there is nothing in this section of Kovacevic et al. that discloses or remotely suggests a first arbitration element with a number of entries for a particular one of the streams based on a speed of the stream, as required by claim 5.

The Examiner did not address these arguments when Applicants previously presented them. If the Examiner maintains the rejection of claim 5 based on Kovacevic et al., Applicants respectfully request that the Examiner identify where Kovacevic et al. discloses the features of claim 5.

For at least these additional reasons, Applicants submit that claim 5 is not anticipated by Kovacevic et al.

Claim 9 recites that the first and second arbitration elements are synchronized.

Kovacevic et al. does not disclose or suggest the combination of features recited in claim 9.

The Examiner alleged that Kovacevic et al. discloses first and second arbitration elements that are synchronized and cited column 8, lines 32-43, of Kovacevic et al. for support (final Office Action, paragraph 10). Applicants respectfully disagree.

At column 8, lines 32-43, Kovacevic et al. discloses;

FIG. 9 illustrates the relationship between the various control and data signals of the transport stream. Specifically, FIG. 9 illustrates a TCLOCK signal having a rising edge for qualifying each data byte of the TDATA signal. Likewise, in the illustration of FIG. 9, the TVALID signal is always asserted during the first byte indicating that the data is valid. The TSTART signal is synchronized to the first byte of the TDATA signal, which is a synchronization byte. In a specific implementation, the synchronization byte of the TDATA signal will always have the Hexadecimal value 47h. The TERROR signal is not illustrated, however it would be asserted to indicate when an error has occurred.

This section of Kovacevic et al. discloses that a TSTART signal is synchronized to a first byte of a TDATA signal. Contrary to the Examiner's allegation, there is nothing in this section of Kovacevic et al. that discloses or remotely suggests first and second arbitration elements that are synchronized, where the first arbitration element arbitrates among the streams of variable speeds to store data in the memory and the second arbitration element arbitrates among the streams of variable speeds to read data from the memory, as required by claim 9.

The Examiner did not address these arguments when Applicants previously presented them. If the Examiner maintains the rejection of claim 9 based on Kovacevic et al., Applicants respectfully request that the Examiner identify where Kovacevic et al. discloses the features of claim 9.

For at least these additional reasons, Applicants submit that claim 9 is not anticipated by Kovacevic et al.

Claim 10 recites features similar to features recited in claim 4, but with regard to the second arbitration element instead of the first arbitration element. Claim 10 is, therefore, not anticipated by Kovacevic et al. for at least reasons similar to reasons given with regard to claim 4. Claims 11 and 12 depend from claim 10 and are, therefore, not anticipated by Kovacevic et al. for at least the reasons given with regard to claim 10. Further, claim 11 recites features similar to features recited in claim 5. Claim 11 is, therefore, also not anticipated by Kovacevic et al. for at least reasons similar to reasons given with regard to claim 5.

Independent claim 21 is directed to a method for processing data received in a plurality of incoming streams of variable speeds. The method comprises storing data from a plurality of variable speed streams in a memory using a first arbitration element that arbitrates among the variable speed streams, and reading the data from the memory using a second arbitration element that arbitrates among the variable speed streams.

Kovacevic et al. does not disclose or suggest the combination of features recited in claim 21. For at least reasons similar to reasons given with regard to claim 1, Kovacevic et al. does not disclose or suggest storing data from a plurality of variable speed streams in a memory using a first arbitration element that arbitrates among the variable speed streams, or reading the data from the memory using a second arbitration element that arbitrates among the variable speed streams.

For at least these reasons, Applicants submit that claim 21 is not anticipated by Kovacevic et al. Claims 22-39 depend from claim 21 and are, therefore, not anticipated by Kovacevic et al. for at least the reasons given with regard to claim 21. Claims 22-39 also recite

features similar to features recited in claims 2-20. Claims 22-39 are, therefore, also not anticipated by Kovacevic et al. for at least reasons similar to reasons given with regard to claims 22-39.

Independent claim 40 is directed to a system for performing flow control on data in a plurality of incoming streams of variable speeds. The system comprises a buffer configured to temporarily store data from a plurality of streams of variable speeds in a plurality of entries, a counter configured to determine a number of entries in the buffer corresponding to each of the streams, and a comparator configured to determine whether to initiate flow control for each of the streams based on the determined number of entries for the stream.

Kovacevic et al. does not disclose or suggest the combination of features recited in claim 40. For example, Kovacevic et al. does not disclose or suggest a buffer configured to temporarily store data from a plurality of streams of variable speeds in a plurality of entries. As explained above with regard to claim 1, Kovacevic et al. is silent with regard to streams of variable speeds. Therefore, Kovacevic et al. cannot disclose or suggest a buffer configured to temporarily store data from a plurality of streams of variable speeds in a plurality of entries, as required by claim 40.

The Examiner alleged:

As to applicant's argument one ordinary skill in the art at the time of the invention knows that the buffer is defined or in other word knows as temporarily storage where as in this case buffer is storing the video streams of variable length interpreted as plurality of streams of variable length.

(final Office Action, paragraph 27). It appears that the Examiner is alleging that Kovacevic et al. discloses video streams of variable length and that video streams of variable length are

equivalent to a plurality of streams of variable length. Even assuming, for the sake of argument that Kovacevic et al. discloses video streams of variable length (a point that Applicants do not concede), Applicants submit that claim 40 does not recite a plurality of streams of variable length, but instead recites a plurality of streams of variable speeds. Applicants submit that streams of variable length are different from streams of variable speeds.

Kovacevic et al. also does not disclose or suggest a counter that is configured to determine a number of entries in the buffer corresponding to each of the streams of variable speeds, as further recited in claim 40.

The Examiner did not specifically address this feature of claim 40. Therefore, the Examiner did not establish a proper case of anticipation with regard to claim 40.

When rejecting a similar feature in claim 16, however, the Examiner alleged that Kovacevic et al. discloses a counter that is configured to determine a number of entries in the buffer corresponding to each of the streams and cited column 15, lines 45-62, of Kovacevic et al. for support (final Office Action, paragraph 17). Applicants respectfully disagree.

At column 15, lines 45-62, Kovacevic et al. discloses:

At step 215, a determination is made whether the packet is a packet that is to be additionally parsed. For example, step 215 specifically indicates that a determination is being made whether the PID value indicates the packet is a video packet. If so, flow proceeds to step 226 for video parsing as indicated in FIG. 22. If the PID does not indicate a packet for special processing, i.e. not a video packet, the flow proceeds to step 227 where the data is send the buffer controller for storage, as indicated with reference to FIG. 22.

When the PID allocation table, or other means, indicates the packet is a video packet the Packetized Elementary Stream Parser (PESP) is enabled to allow further processing. In the specific embodiment of the PID allocation table listed above, the video PID is stored as PID_0. However, other methods of identifying the video PID, such as the use of a flag or other indicator are also possible. The operation of the PESP is controlled by the PESP Control Registers, as illustrated in FIG. 18.

Contrary to the Examiner's allegation, nowhere in this section, or any other section, does Kovacevic et al. disclose or remotely suggest a counter that is configured to determine a number of entries in the buffer corresponding to each of the streams of variable speeds, as required by claim 40.

Kovacevic et al. also does not disclose or suggest a comparator configured to determine whether to initiate flow control for each of the streams based on the determined number of entries for the stream, as further recited in claim 40.

The Examiner did not specifically address this feature of claim 40. Therefore, the Examiner did not establish a proper case of anticipation with regard to claim 40.

When rejecting a similar feature in claim 16, however, the Examiner alleged that Kovacevic et al. discloses a comparator configured to determine whether to initiate flow control for each of the streams based on the determined number of entries for the stream and cited column 15, lines 45-62, of Kovacevic et al. for support (final Office Action, paragraph 17). Applicants respectfully disagree.

Column 15, lines 45-62, of Kovacevic et al. is reproduced above. Contrary to the Examiner's allegation, nowhere in this section does Kovacevic et al. disclose or remotely suggest a comparator configured to determine whether to initiate flow control for each of the streams of variable speeds based on the determined number of entries for the stream, as required by claim 40.

At column 36, lines 37-46, however, Kovacevic et al. discloses that an interrupt can be generated to indicate that the video memory is ready to receive data, such as when the read

pointer is at or past the watermark of the video memory. Nowhere in this section, or elsewhere, however, does Kovacevic et al. disclose or remotely suggest a comparator configured to determine whether to initiate flow control for each of the streams of variable speeds based on the determined number of entries for the stream, as required by claim 40.

For at least these reasons, Applicants submit that claim 40 is not anticipated by Kovacevic et al. Claims 41-47 depend from claim 40 and are, therefore, not anticipated by Kovacevic et al. for at least the reasons given with regard to claim 40.

Independent claims 48 and 55 recite features similar to features recited in claim 40. Claims 48 and 55 are, therefore, not anticipated by Kovacevic et al. for at least reasons similar to reasons given with regard to claim 40. Claims 49-54 depend from claim 48 and are, therefore, not anticipated by Kovacevic et al. for at least the reasons given with regard to claim 48.

Independent claims 56 and 57 recite features similar to features recited in claim 1. Claims 56 and 57 are, therefore, not anticipated by Kovacevic et al. for at least reasons similar to reasons given with regard to claim 1.

In view of the foregoing amendments and remarks, Applicants respectfully request the Examiner's reconsideration of the application and the timely allowance of pending claims 1-57.

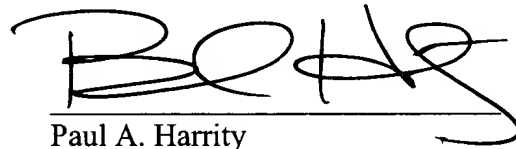
Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-57 in condition for allowance. Applicants submit that the proposed amendments do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or implied in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

If the Examiner does not believe that all pending claims are now in condition for allowance, the Examiner is urged to contact the undersigned to expedite prosecution of this application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

HARRITY & SNYDER, L.L.P.

A handwritten signature in black ink, appearing to read 'PAUL A. HARRITY', written over a horizontal line.

Paul A. Harrity
Reg. No. 39,574

Date: September 27, 2005

11240 Waples Mill Road
Suite 300
Fairfax, Virginia 22030
(571) 432-0800